

Sub A2

CLAIMS:

1. A golf ball material comprising a heated mixture having a melt index of 1.0 dg/min which is composed of:
- 5 (A) 100 parts by weight of a base resin comprising one or a mixture of
- (A1) an olefin-unsaturated carboxylic acid random copolymer or an olefin-unsaturated carboxylic acid-unsaturated carboxylate random copolymer or both, and
- 10 (A2) a metal ion-neutralized olefin-unsaturated carboxylic acid random copolymer or a metal ion-neutralized olefin-unsaturated carboxylic acid-unsaturated carboxylate random copolymer or both;
- (B) 5 to 80 parts by weight of a fatty acid or fatty acid derivative having a molecular weight of at least 280; and
- 15 (C) 0.1 to 10 parts by weight of a basic inorganic metal compound capable of neutralizing acidic groups in components A and B.
- 20 2. The golf ball material of claim 1, wherein component A2 is a zinc-neutralized ionomer resin.
- 25 3. The golf ball material of claim 1, wherein the fatty acid or fatty acid derivative of component B has from 18 to 80 carbon atoms per molecule.
- 30 4. The golf ball material of claim 1, wherein the fatty acid or fatty acid derivative of component B is selected from the group consisting of stearic acid, behenic acid, arachidic acid, lignoceric acid and derivatives thereof.
- 35 5. The golf ball material of claim 1, wherein the basic inorganic metal compound of component C is magnesium oxide.
6. The golf ball material of claim 1, wherein the heated mixture, when subjected to infrared absorption spectroscopy,

has an absorption peak attributable to carboxylate stretching vibrations at 1530 to 1630 cm⁻¹ and an absorption peak attributable to carbonyl stretching vibrations at 1690 to 1710 cm⁻¹, such that carboxylate peak absorbance is at least 1.5 times greater than carbonyl peak absorbance.

5 ^{AM↑ of Neutralization}
 ^{68%↑}

7. The golf ball material of claim 1, wherein the heated mixture, when subjected to thermogravimetric analysis, has a weight loss at 250°C of not more than 2% based on the weight
10 at 25°C.

8. The golf ball material of claim 1, wherein at least 70 mol% of the acid groups in the heated mixture are neutralized with metal ions.

15 ^{AM↑ of Neutralization}
9. The golf ball material of claim 8, wherein the metal ions which neutralize the acid groups in the heated mixture are comprised of at least one type of transition metal ion and at least one type of alkali metal or alkaline earth
20 metal ion.

10. The golf ball material of claim 9, wherein the transition metal ions and the alkali metal or alkaline earth metal ions have a molar ratio of 10:90 to 90:10.

25 ^{AM↑ of Neutralization}
11. The golf ball material of claim 9, wherein the transition metal ions are zinc ions, and the alkali metal or alkaline earth metal ions are at least one type selected from the group consisting of sodium ions, lithium ions, calcium ions and magnesium ions.

12. A one-piece golf ball made from the golf ball material according to any one of claims 1 to 11.

35 ^{AM↑ of Neutralization}
13. A solid golf ball comprising a solid core of at least one layer and a cover of at least one layer enclosing the solid core, wherein at least one layer of the solid core or

the cover is made of the golf ball material according to any one of claims 1 to 11.

14. The solid golf ball of claim 13 comprising a one-layer
5 cover enclosing the solid core, wherein the cover is made of the golf ball material according to any one of claims 1 to 11.

15. The solid golf ball of claim 13 comprising a cover of
10 at least two layers enclosing the solid core, wherein at least one inner cover layer other than the outermost cover layer is made of the golf ball material according to any one of claims 1 to 11.

15. 16. A thread-wound golf ball comprising:
a thread-wound core composed of a solid center of at least one layer or a liquid center made of a liquid-filled center envelope, about which solid or liquid center has been wound a rubber thread, and

20 a cover of at least one layer which encloses the thread-wound core;
wherein the solid center or at least one layer of the cover is made of the golf ball material according to any one of claims 1 to 11.

25 17. The thread-wound golf ball of claim 16, wherein the thread-wound core is enclosed within a one-layer cover made of the golf ball material according to any one of claims 1 to 11.

30 18. The thread-wound golf ball of claim 16, wherein the thread-wound core is enclosed within a cover having at least two layers, of which at least one inner layer other than the outermost layer is made of the golf ball material according
35 to any one of claims 1 to 11.